

Release notes for ENDF/B Development n-098\_Cf\_253  
evaluation



April 26, 2017

- fudge-4.0 Warnings:

1. Cross section does not match sum of linked reaction cross sections  
*crossSectionSum label 0: total (Error # 0): CS Sum.*

**WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.55%**

2. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 1 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

3. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 2 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (3.459690e-09) is too small**

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 3 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 3 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 4 (n + Cf253): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 4 (n + Cf253): / Form 'eval': / Component 1 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission]): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed']) + gamma [total fission]): / Form 'eval': / Component 1 (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 10 (n + (Cf253\_e1 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (2.711338e-09) is too small

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 11 (n + (Cf253\_e2 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (1.156984e-09) is too small

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 12 (n + (Cf253\_e3 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (1.003742e-09) is too small

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 13 (n + (Cf253\_e4 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (6.019738e-09) is too small

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 14 (n + (Cf253\_e5 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (5.361981e-09) is too small

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 15 (n + (Cf253\_e6 -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (4.973790e-09) is too small

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 16 (n + (Cf253\_c -> Cf253 + gamma)): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 17 (Cf254 + gamma): / Form 'eval': / Component 0 (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 17 (Cf254 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

19. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 18 (n + Cf253 [angular distribution]): / Form 'eval': (Error # 1): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

20. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 19 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

21. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 20 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

22. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 21 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

23. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 22 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'1 delayed'] + gamma [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

- fudge-4.0 Errors:

1. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_a / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
2. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Distribution: / uncorrelated - angular - isotropic: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (170000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)  
 WARNING: Domain doesn't match the cross section domain: (241970.0 -> 20000000.0) vs (110879.0 -> 20000000.0)  
 WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)  
 WARNING: Domain doesn't match the cross section domain: (330311.0 -> 20000000.0) vs (110879.0 -> 20000000.0)  
 ... plus 5 more instances of this message
3. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_b / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (241970.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
4. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_c / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
5. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_d / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (330311.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
6. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_e / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (500000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
7. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_f / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
8. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_g / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$   

WARNING: Domain doesn't match the cross section domain: (241970.0 -> 20000000.0) vs (110879.0 -> 20000000.0)
9. Energy range of data set does not match cross section range  
 $reaction\ label\ 7: n + (Cf253\_c \rightarrow Cf253 + gamma) / Product: Cf253\_c / Decay\ product: gamma\_h / Multiplicity: (Error\ #0): Domain\ mismatch\ (a)$

WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)

10. Energy range of data set does not match cross section range  
*reaction label 7: n + (Cf253\_c -> Cf253 + gamma) / Product: Cf253\_c / Decay product: gamma\_i / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (110879.0 -> 20000000.0)

11. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

12. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

13. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

14. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

15. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

16. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

17. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

18. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

19. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
20. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
21. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_f / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
22. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
23. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_g / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
24. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
25. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_h / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
26. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)
27. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_i / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

28. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_i / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

29. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_j / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

30. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_j / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

31. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_k / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

32. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_k / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

33. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_l / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

34. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_l / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

35. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_m / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

36. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_m / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

37. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_n / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

38. Energy range of data set does not match cross section range  
*reaction label 8: n[multiplicity:'2'] + Cf252 + gamma / Product: gamma\_n / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (6000000.0 -> 20000000.0) vs (4823440.0 -> 20000000.0)

39. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

40. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

41. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

42. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

43. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

44. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

45. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

46. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

47. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

48. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

49. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_f / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

50. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

51. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_g / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

52. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

53. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_h / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

54. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

55. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_i / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

56. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_i / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

57. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_j / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

58. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_j / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

59. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_k / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

60. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_k / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

61. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_l / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

62. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_l / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

63. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_m / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

64. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_m / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

65. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_n / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

66. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_n / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

67. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_o / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

68. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_o / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

69. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_p / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

70. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_p / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

71. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_q / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

72. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_q / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

73. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_r / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

74. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_r / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

75. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_s / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

76. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_s / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

77. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_t / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

78. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_t / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

79. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_u / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

80. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_u / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

81. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_v / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

82. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_v / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (11500000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

83. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_w / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

84. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_w / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

85. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_x / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

86. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_x / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

87. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_y / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

88. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'3'] + Cf251 + gamma / Product: gamma\_y / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11020000.0 -> 20000000.0)

89. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

90. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

91. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

92. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

93. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

94. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

95. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

96. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'4'] + Cf250 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17000000.0 -> 20000000.0) vs (16148800.0 -> 20000000.0)

97. Multiplicity does not match sum of linked product multiplicities!  
*multiplicitySum label 9: n + (Cf253\_c -> Cf253 + gamma) total gamma multiplicity (Error # 0): summedMultiplicityMismatch*

**WARNING:** Multiplicity does not match sum of linked product multiplicities! Max diff: 0.87%

98. Multiplicity does not match sum of linked product multiplicities!  
*multiplicitySum label 10: n[multiplicity:'2'] + Cf252 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch*

**WARNING:** Multiplicity does not match sum of linked product multiplicities! Max diff: 99.32%

99. Multiplicity does not match sum of linked product multiplicities!  
*multiplicitySum label 11: n[multiplicity:'3'] + Cf251 + gamma total gamma multiplicity (Error # 0): summedMultiplicityMismatch*

**WARNING:** Multiplicity does not match sum of linked product multiplicities! Max diff: 99.96%

100. Multiplicity does not match sum of linked product multiplicities!  
 $multiplicitySum$  label 12:  $n[multiplicity: '4'] + Cf250 + gamma$  total gamma multiplicity  
 (Error # 0): summedMultiplicityMismatch
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 99.72%
101. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 0: /reactionSuite/fissionComponents/fissionComponent[@label='0']  
 (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.210186e8 eV!
102. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 1: /reactionSuite/fissionComponents/fissionComponent[@label='1']  
 (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.210186e8 eV!
103. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 2: /reactionSuite/fissionComponents/fissionComponent[@label='2']  
 (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.210186e8 eV!
104. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 3: /reactionSuite/fissionComponents/fissionComponent[@label='3']  
 (Error # 0): Q mismatch
- WARNING: Calculated and tabulated Q-values disagree: 236686850515.7421 eV vs 2.210186e8 eV!
105. A covariance matrix was not positive semi-definite, so it has negative eigenvalues.  
*Section 18 (n + Cf253 [angular distribution]): / Form 'eval': / LegendreLValue L=1 vs 1 (Error # 0): Bad evs*
- WARNING: 10 negative eigenvalues! Worst case = -2.450541e-04
- njoy2012 Warnings:
    - Evaluation has no resonance parameters given  
*unresr...calculation of unresolved resonance cross sections (0): No RR*  

```
---message from unresr---mat 9864 has no resonance parameters
copy as is to nout
```
    - In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.  
*heatr...prompt kerma (0): HEATR/hinit (3)*  

```
---message from hinit---mt19 has no spectrum
mt18 spectrum will be used.
```
    - Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (1): HEATR/hinit (4)*

---message from hinit---mf6, mt 16 does not give recoil za= 98252  
one-particle recoil approx. used.

4. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (2): HEATR/hinit (4)*

---message from hinit---mf6, mt 17 does not give recoil za= 98251  
one-particle recoil approx. used.

5. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (3): HEATR/hinit (4)*

---message from hinit---mf6, mt 37 does not give recoil za= 98250  
one-particle recoil approx. used.

6. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (4): HEATR/hinit (4)*

---message from hinit---mf6, mt 51 does not give recoil za= 98253  
one-particle recoil approx. used.

7. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (5): HEATR/hinit (4)*

---message from hinit---mf6, mt 52 does not give recoil za= 98253  
one-particle recoil approx. used.

8. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (6): HEATR/hinit (4)*

---message from hinit---mf6, mt 53 does not give recoil za= 98253  
one-particle recoil approx. used.

9. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (7): HEATR/hinit (4)*

---message from hinit---mf6, mt 54 does not give recoil za= 98253  
one-particle recoil approx. used.

10. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (8): HEATR/hinit (4)*

---message from hinit---mf6, mt 55 does not give recoil za= 98253  
one-particle recoil approx. used.

11. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (9): HEATR/hinit (4)*

---message from hinit---mf6, mt 56 does not give recoil za= 98253  
one-particle recoil approx. used.

12. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (10): HEATR/hinit (4)*

---message from hinit---mf6, mt 91 does not give recoil za= 98253  
one-particle recoil approx. used.

13. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (11): HEATR/hinit (4)*

```
---message from hinit---mf6, mt102 does not give recoil za= 98254
      photon momentum recoil used.
```

14. There is a problem with the fission energy release.  
*heatr...prompt kerma (20): HEATR/nheat (3)*

```
---message from nheat---changed q from 2.210186E+08 to 2.072460E+08
      for mt 18
```

15. Evaluation has no resonance parameters given  
*purr...probabalistic unresolved calculation (0): No RR*

```
---message from purr---mat 9864 has no resonance parameters
      copy as is to nout
```

16. The number of coefficients was too large in a covariance  
*covr...process covariance data (1): Cov:Too many coeff.*

```
---message from matshd--- 168 coefficients > 2
      reset and continue
```